Research Infrastructures in H2020

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Research Infrastructures

Research Infrastructures

- Research infrastructures are **facilities, resources and services** that are used by the research communities to conduct research and foster innovation.

- **Localización única**. Un único recurso en un único lugar. **Distribuidas**. Una red de recursos distribuidos. **Virtuales**. El servicio es ofrecido electrónicamente

Knowledge-based resources

Major scientific equipments

e-infrastructures

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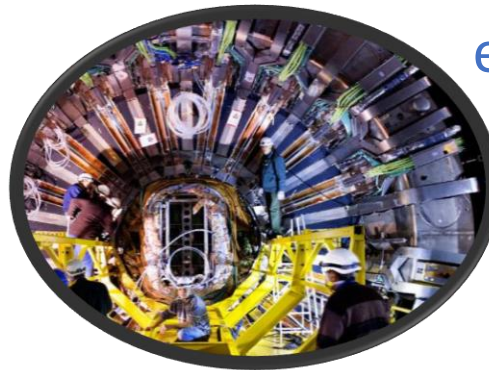
Research Infrastructures

Intergovernmental Research Infrastructures.

- Infraestructuras de investigación bien establecidas respaldadas por los Estados miembros.

New Pan-European Research Infrastructures.

- Infraestructuras de investigación identificadas en el roadmap del European Strategy Forum on Research Infrastructures (ESFRI)

National Research Infrastructures.

- La Comisión Europea promueve varias redes de infraestructuras de investigación nacionales y regionales abiertas a todos los investigadores europeos de la academia y la industria."Integrating Activity" projects (H2020).

EU approach to RI

- To address collectively the complexity and cost of the design and development of new world class research infrastructures

- To open access to the research infrastructures existing in the individual Member State to all European researchers

- To avoid duplication of efforts and to coordinate and rationalise the use of these research infrastructures

- To trigger the exchange of best practice, develop interoperability of facilities and resources, develop the training of the next generation of researchers

- To connect national research communities and increase the overall quality of the research and innovation

- To help pooling resources so that the Union can also develop and operate research infrastructures globally

Stakeholders in RI policies

Actores en la definición de las políticas de RI.

A través del PT de Infraestructuras de Investigación H2020
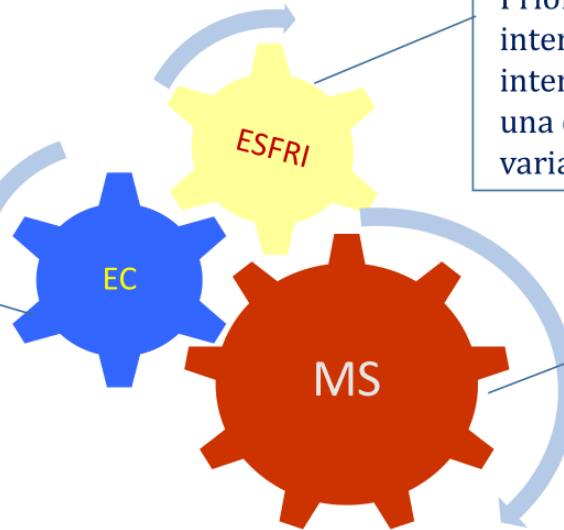
Foro de MS y AC+CE Incubador proyectos, utilizando el ejercicio de "Roadmapping".
Prioriza aquellas infras únicas de interés paneuropeo. Coordina los intereses de los Estados Miembros en una configuración de geometría variable

Compromiso de recursos nacionales para la construcción y sostenibilidad de las Infraestructuras de Investigación

ESFRI

EC

MS

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ESFRI European Research Infrastructure Forum

- Instrumento estratégico para definir las políticas sobre infraestructuras de investigación en Europa, que busca facilitar iniciativas multilaterales desde 2002.

- Frente común ante la necesidad de:
  - Compartir recursos financieros y humanos.
  - Coordinación para evitar duplicidades.
  - Competir con otras economías
  - Coordinación de esfuerzos y estrategia europea común

- Define las estrategias para poder financiar los más de 20BM€ y los compromisos de largo plazo para la operación de las Infraestructuras.

- Bajo el mandato del Consejo de Competitividad de la Unión Europea, ESFR completó la Hoja de Ruta 2018 e inicia ahora el proceso de actualización de lq Hoja de ruta que concluirá con HR 2021
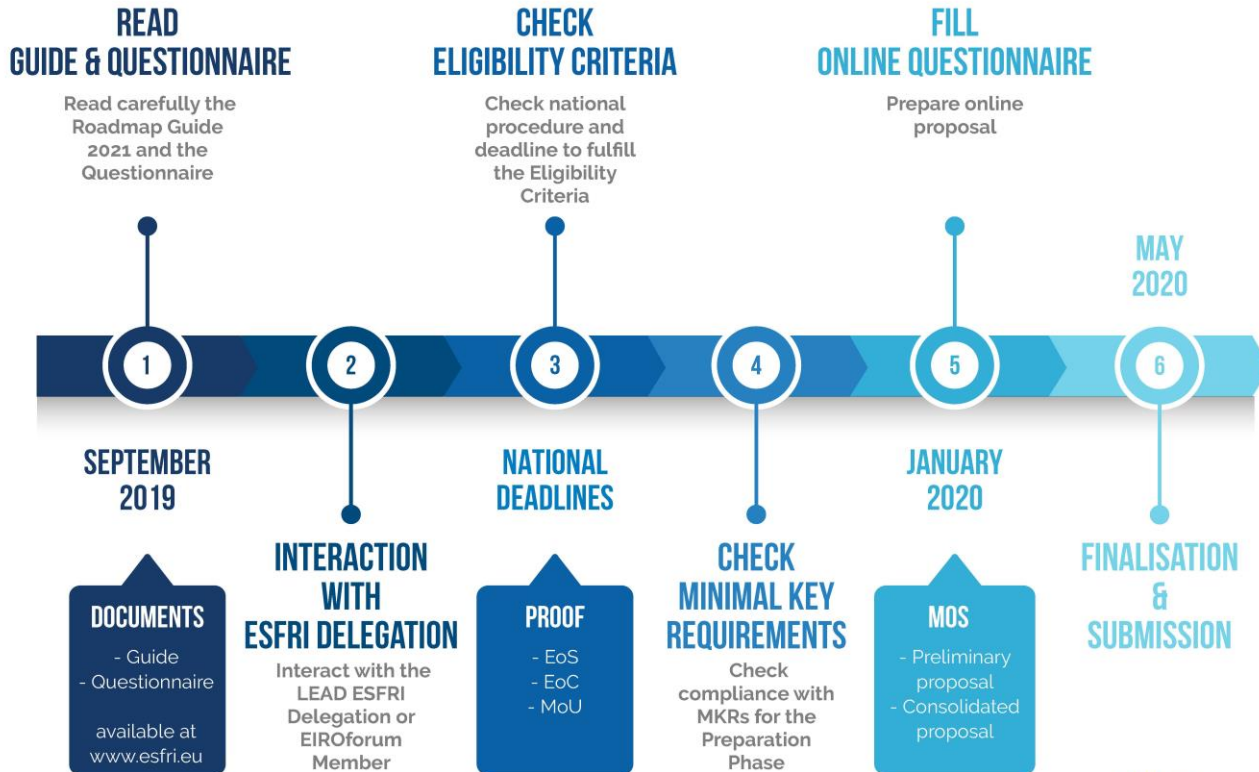
ESFRI Projects

- Son RIs en fase de preparación que han sido seleccionados por la excelencia de su caso científico y por su madurez, con una sólida expectativa de que el Proyecto entre en fase de ejecución en el plazo de diez años.

Se incluyen en la Hoja de Ruta para:

- Señalar la importancia estratégica que representan para el Espacio Europeo de Investigación,

- y para apoyar su implementación oportuna como nuevas RI o actualizaciones importantes de las RI existentes.

- Los proyectos pueden estar en diferentes etapas de su desarrollo hacia su implementación de acuerdo a su respectiva fecha de inclusión en la Hoja de Ruta.

NEW PROPOSAL SUBMISSION

ESFRI

READ
GUIDE & QUESTIONNAIRE

Read carefully the Roadmap Guide 2021 and the Questionnaire

CHECK
ELIGIBILITY CRITERIA

Check national procedure and deadline to fulfill the Eligibility Criteria

FILL
ONLINE QUESTIONNAIRE

Prepare online proposal

1 **2** **3** **4** **5** **6**

MAY 2020

SEPTEMBER 2019

NATIONAL DEADLINES

JANUARY 2020

DOCUMENTS
- Guide
- Questionnaire

available at www.esfri.eu

INTERACTION WITH ESFRI DELEGATION

Interact with the LEAD ESFRI Delegation or EIROforum Member

PROOF
- EoS
- EoC
- MoU

CHECK MINIMAL KEY REQUIREMENTS

Check compliance with MKRs for the Preparation Phase

MOS
- Preliminary proposal
- Consolidated proposal

FINALISATION & SUBMISSION

STRESFRI₂ Funded by EU H2020 Grant Agreement n° 823711

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ESFRI – BioMedical Sciences

- biobanking & biomolecular resources

- curated databases

- highly pathogenic microorganisms

- functional genomics

- microorganisms

- translational research

- marine model organisms

- screening & medicinal chemistry

- structural biology

- clinical trials

- plant phenotyping
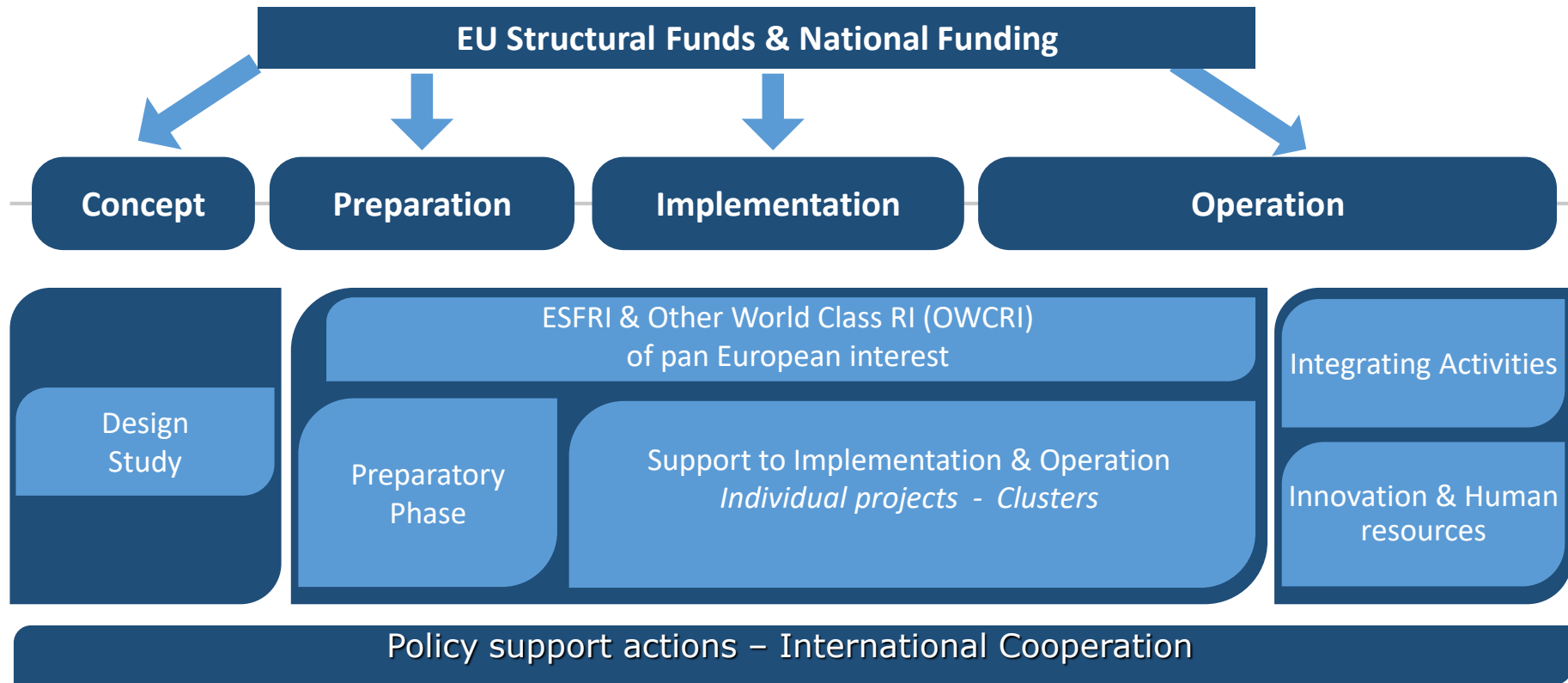

- biological/medical imaging

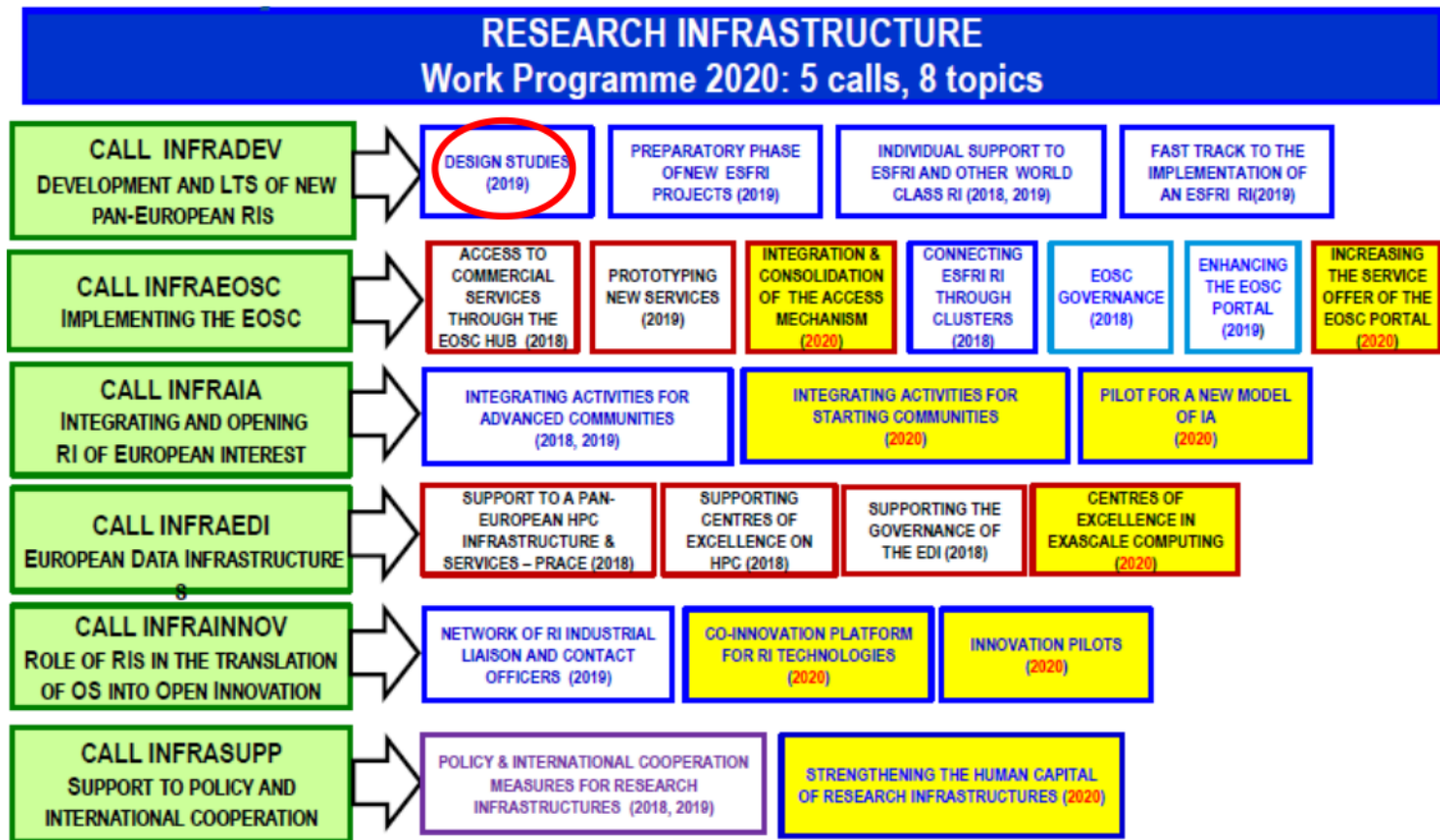- systems biology

Services from basic to clinical research

WP2020

Research Infrastructures in Horizon 2020

Research Infrastructures in H2020: Support along the whole cycle

WP2020: 5 calls, 8 topics, 2 DGs

Implementing the European Open Science Cloud (EOSC)

The European Science Cloud (EOSC)

- The EOSC will offer 1.7 million European researchers and 70 million professionals in science, technology, the humanities and social sciences a virtual environment with open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines by federating existing scientific data infrastructures, currently dispersed across disciplines and the EU Member States.

- The European Open Science Cloud (EOSC) initiative has been proposed in 2016 by the European Commission as part of the European Cloud Initiative to build a competitive data and knowledge economy in Europe. An extensive consultation with scientific and institutional stakeholders took place in 2016 and 2017. An engagement process was initiated with a first EOSC Summit in June 2017, resulting in the EOSC Declaration endorsed by more than 70 institutions. The summary outcome of the consultation was presented in March 2018 by the European Commission in the form of a roadmap for implementing the EOSC.

EOSC Implementation Roadmap

Architecture	Architecture of the federated infrastructures as the solution to the current fragmentation in research data infrastructures which are insufficiently interoperable.
Data	FAIR data management and tools. A common data language to ensure data stewardship across borders/disciplines based on FAIR principles.
Services	Available services from a user perspective. A rich environment offering a wide range of services covering the needs of the users.
Access & Interface	Mechanisms/interfaces for accessing EOSC. A simple way to deal with open data obligations, or to access research data across different disciplines.
Rules	Rules of participation for different EOSC actors. An opportunity to comply with existing legal and technical frameworks and increase legal certainty & trust.
Governance	Governance of the EOSC, aiming at ensuring EU leadership in data-driven science but requiring new governance frameworks.

Call Identifier: **INFRAEOSC-03-2020**

Name: Integration and consolidation of the existing pan-European access mechanism to public research infrastructures and commercial services through the EOSC Portal

Built on previous topics outcomes' (INFRAEOSC-2019-2018)
EOSC Hub, OpenAire, EOSC Portal

Scope:

- The challenge is to consolidate and scale up the EOSC Portal and its underlying service platform.

- Proposals should address all together:

o The operation, maintenance and enhancement of the EOSC Portal (the website

o The catalogue of services and the marketplace)

o The fostering and enabling secure service composability

o An user enhanced experience using Artificial Intelligence (AI) techniques

o The widening of the EOSC user base

o The widening of the service offer with commercial services

Total Budget: 40.9 M€

Contribution per project: Up to 40.9 M€

Opening date: 19 November 2019

Deadline: 22 April 2020

Type of Action: Research & Innovation Action (RIA)

Call Identifier: **INFRAEOSC-07-2020**

Name: Increasing the service offer of the EOSC Portal

Scope:

- In order to coordinate the provision through the EOSC Portal of state-of-the-art research purely enabling services across Europe, proposals should build on the competences of pan-European e-Infrastructures of diverse domains to ensure multidisciplinary research and synergies with national and regional programmes.

- Six areas have been established:

  - **(A1) Distributed and cloud computing resources**
  - **(A2) Data services**
  - **(A3) Services supporting scholarly communication and open access**
  - **(A4) Above the net services**
  - **(A5) Services and resources from non-research public sector data providers**
  - **(A6) Additional research enabling services**

Total Budget: 24 M€

Contribution per project:
- Area A1 – 8 M€
- Area A2 – 7 M€
- Area A3– 4 M€
- Area A4 – 2 M€
- Area A5 – 1 M€
- Area A6 – 2 M€

Opening date: 19 November 2019

Deadline: 22 April 2020

Type of Action: Research & Innovation Action (RIA)

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Integrating and opening Research Infrastructures of European interest

Call Identifier: **INFRAIA-02-2020**

Name: Integrating Activities for Starting Communities

Scope:

- The aim is to bring together, integrate on European scale, and open up key national and regional research infrastructures to all European researchers, from both academia and industry, ensuring their optimal use and joint development.

- An Integrating Activity will mobilise a comprehensive consortium of several key research infrastructures in a given field as well as other stakeholders (e.g. public authorities, technological partners, research institutions).

- An Integrating Activity shall combine:

  o Networking activities

  o Trans-national access or virtual access activities

  o Joint research activities

Total Budget: 115 M€

Contribution per project: Up to 5 M€

Opening date: 28 November 2019

Deadline: 17 March 2020

Type of Action: Research & Innovation Action (RIA)

Scope

- Para comunidades de RI que no han sido financiadas en programas anteriores

- Énfasis en networking, standarización, procedimiento común de acceso, complementariedad y coherencia con las RIs existentes

- Especial énfasis en la sostenibilidad, la ampliación, las habilidades, la innovación y la gestión de datos según EOSC

Evaluation Criteria

For the criterion Excellence, in addition to its standard sub-criteria, the following aspects will also be taken into account;

- The extent to which the proposal integrates the related community and ensures complementarity and coherence with the existing European Research Infrastructures landscape, including ESFRI infrastructures and existing integrating activities for advanced communities.

- The extent to which the Networking Activities will foster a culture of co-operation between the participants and other relevant stakeholders.

- The extent to which the Access Activities (Trans-national Access and/or Virtual activities) will offer access to state-of-the-art infrastructures, high quality services, and will enable users to conduct excellent research.

- The extent to which the Joint Research Activities will contribute to quantitative and qualitative improvements of the services provided by the infrastructures.

For the criterion Impact the second sub-criterion is substituted by:

- Where relevant, any substantial impacts not mentioned in the work programme, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society;

Call Identifier: INFRAIA-03-2020

Name: Pilot for a new model of Integrating Activities

Scope:

- The main objective of this topic is the provision of access to research infrastructures and the harmonisation of national and European procedures for providing access.

- Proposals will mobilise a comprehensive group of several key research infrastructures in a given large domain as well as other stakeholders (e.g. public authorities, funding agencies, technological partners, research institutions).

- Proposals should include a plan and effective commitment towards the optimum integration of the research infrastructure services of the different but close communities under the Pilot scheme, as well as activities to monitor the related progress

- Atmósfera
- Micro-nano tecnologías para materiales
- Radio astronomía avanzada y Astronomía óptica/IR

Total Budget: 45 M€

Contribution per project: Up to 15 M€

Opening date: 28 November 2019

Deadline: 17 March 2020

Type of Action: Research & Innovation Action (RIA)

Call Identifier: **INFRAINNOV-03-2020**

Name: Co-Innovation platform for research infrastructure technologies

Scope:

- The aim is the establishment of an open initiative oriented towards a novel research and innovation collaborative framework engaging both the research communities in Europe using Research Infrastructures and the industry (including SMEs), for the mutual benefit of these stakeholders and the European society at large.

- Proposals under this topic should focus on the most promising outcomes of the past pilot action as well as on other valuable opportunities of exploitation of research infrastructure technologies for industrial applications, to further support their development and substantially raise their TRL.

- These opportunities should have breakthrough potential across Europe, be feasible and scalable, as well as exploitable for industrial applications having societal value.

2ª fase del proyecto ATTRACT, cuyo objetivo fue apoyar en una primera fase las pruebas de concepto de un gran número de propuestas innovadoras (100k€).

Total Budget: 35 M€

Contribution per project: Up to 35 M€

Opening date: 28 November 2019

Deadline: 17 March 2020

Type of Action: Research & Innovation Action (RIA)

Call Identifier: **INFRAINNOV-04-2020**

Name: Innovation pilots

Scope:

- The aim is to kick-start the implementation of a common strategy/roadmap for technological developments required for improving their services through partnership with industry.

- Proposals should then involve research infrastructures, industry and SMEs to promote innovation and knowledge sharing through co-creation of needed technical solutions and make use, when appropriate, of large-scale platforms combining R&D (Research and Development), integration and validation for the technological developments.

- Proposals should address:

o The identification of key techniques and trends

o The development of the identified fundamental technologies or techniques

o The prototyping of higher performance methodologies, protocols, and instrumentation

• Tres áreas de innovación:
Fuentes de luz (CALIPSOplus)
Tecnologías de detectores para aceleradores (AIDA- 2020)
Tecnologías de aceleradores: ARIES

Total Budget: 60 M€

Contribution per project: Up to 10 M€

Opening date: 28 November 2019

Deadline: 17 March 2020

Type of Action: Research & Innovation Action (RIA)

Call Identifier: **INFRASUPP-02-2020**

Name: Strengthening the human capital of research infrastructures

Scope:

- The activity will support the training of both female and male staff managing and operating research infrastructures, the exchange of staff and best practices between facilities, and the adequate supply of skilled human resources, including through the development of specific education curricula and courses.

- A proposal should build on the past activities and the experience gained in projects such as RAMIRI (Realising and Managing International Research Infrastructures) and RItrain (Research Infrastructures Training Programme and presents a clear evolution.

- The activities should include the promotion of existing good practises at research infrastructures as well as dissemination and exploitation of successful experiences to a wider set of relevant stakeholders.

Total Budget: 2 M€

Contribution per project: Up to 2 M€

Opening date: 28 November 2019

Deadline: 17 March 2020

Type of Action: Coordination and Support Action (CSA)

Access to RI

EOSC Portal: www.eosc-portal.eu

Transnational Access/Virtual Access

- Página de la Comisión Europea: Listado, por dominio científico, de redes de Acceso Transnacional financiadas por el programa de infraestructuras:

http://ec.europa.eu/research/infrastructures/index.cfm?pg=access

- Búsqueda en Cordis por topic: 2020-INFRAIA-2018-1

- Pagina del proyecto europeo RICH (red de puntos nacionales de contacto del programa de infraestructuras): http://www.rich2020.eu/

TNA/VA Calls

Horizon Europe

Overview of activities in H2020

Activities		EU Contribution (M€)	% Total
ESFRI	**ESFRI Preparatory Phases (incl. Early Phase support)**	59	
	Individual support (incl. ESFRI Priority projects)	220	
	Clusters	177	
	Support to ESFRI Forum	3,5	
Total ESFRI		459,5	31%
Other	**Design Studies**	78	
	Integrating Activities	843	
	Other (EOSC, Innovation actions, International cooperation, policy support actions)	119,5	
Total Other		1040,5	69%
Total		~1500	100%

Horizon Europe

- The EU research and innovation framework programme (2021-2027)
  - to strengthen the EU's scientific and technological bases and the European Research Area (ERA) thanks to increased investment in highly skilled people and cutting-edge research.
  - to boost Europe's innovation capacity, competitiveness and jobs supporting market-creating innovation via the European Innovation Council and the European Institute of Innovation and Technology.
  - to deliver on citizens' priorities and sustain our socio-economic model and values, like climate change, and tackle global challenges that affect the quality of our daily lives.

- The European Commission proposes a budget of € 100 billion for Horizon Europe.

Specific objectives of the Programme

Support the creation and diffusion of high-quality knowledge

Strengthen the impact of R&I in supporting EU policies

Foster all forms of innovation and strengthen market deployment

Optimise the Programme's delivery for impact in a strengthened ERA

Pillar 1
Open Science

European Research Council

Marie Skłodowska-Curie Actions

Infrastructures

Pillar 2
Global Challenges and Industrial Competitiveness

Clusters
- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources

Joint Research Centre

Pillar 3
Open Innovation

European Innovation Council

European innovation ecosystems

European Institute of Innovation and Technology

Strengthening the European Research Area

Sharing excellence

Reforming and Enhancing the European R&I system

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Budget proposal: no growth for RI

Budget distribution

HORIZON EUROPE	94,1
Pillar I «Open Science»	25.8
1. European Research Council	16,6
2. Marie Skłodowska-Curie Actions	6,8
3. Research infrastructures	2,4
Pillar II «Global Challenges and Industrial Competitiveness»	52.7
1. Health	7,7
2. Inclusive and Secure Society	2,8
3. Digital and Industry	15
4. Climate, Energy and Mobility	15
5. Food and Natural Resources	10
Non-nuclear direct actions for the Joint Research Centre (JRC)	2,2
Pillar III «Open Innovation»	13,50
1. European Innovation Council	10,5
European Innovation Ecosystems	0,5
2. European Institute of Innovation and Technology (EIT)	3
«Strengthening the European Research Area»	2,1
Sharing Excellence	1,7
Reforming and Enhancing the European R&I System	0,4

Pie chart: 14% - 2% - 28% - 56%
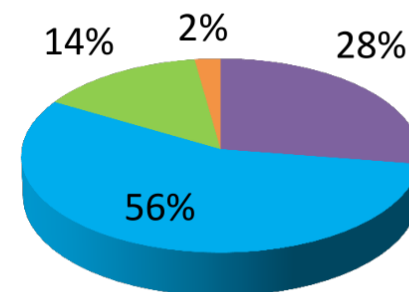
- Open Science
- Global Challenges and Industrial Competitiveness
- Open Innovation
- Strengthening the ERA

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RI in Horizon Europe

- The EU strategic approach of RI development has generated clear advantages, such as avoiding duplication of efforts, pooling resources, rationalising RI use, standardising processes and procedures as well as consolidating the global leadership of European RI.

- A number of outstanding issues have yet to be addressed in the forthcoming years

Areas of intervention

1. Consolidating the Landscape of European Research Infrastructures

2. Opening, Integrating and Interconnecting Research Infrastructures

3. The innovation potential of European Research Infrastructures and activities for innovation and training

4. Reinforcing European Research Infrastructure policy and International Cooperation

RI NCPs and Representative

Inmaculada Figueroa

MICINN

National Representative RIC-H2020

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Thank you